

GENERATOR

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CONFIDENTIAL

March 14, 1958

Dear Sir:

This letter report describes the activity under Task Order No. C during February, 1958.

During this period, three 1/5-scale runs were made in the small experimental generator. The results are indicated in Table 1.

In all three runs, the time for total generation was in excess of the specified maximum of 60 minutes. On the basis of the results obtained from the eight tests conducted thus far in the small generator unit, it is necessary to revise the relationship among catalyst concentration, initial temperature, and time for total generation that had been deduced previously from the small-scale laboratory studies of this system. The data are currently being analyzed to determine the relationship which best expresses the influence of catalyst concentration and temperature on generation time.

The 1/5-scale experimental generator is being modified to incorporate some of the design changes that are contemplated for the full-scale experimental unit. These modifications include the use of neoprene-coated nylon fabric tubing for the generator water inlet and the catalyst feed-tube inlet so as to eliminate the zippers, which have proven unsatisfactory in the 1/5-scale unit.

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TABLE 1. DATA FOR ADDITIONAL RUNS IN 1/5-SCALE GENERATOR UNIT

Run No.	Scale	Gas Generated, cu ft				Per Cent Reaction	Temp. F		Catalyst, $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$, lb	Time for Total Generation, min.	Method of Addition
		H_2 , Theoretical	$\text{H}_2 + \text{H}_2\text{O}$, Uncorrected	H_2 , Corrected	H_2O , Corrected (1)		Initial	Rise			
6	1/5	760	842	720	48	94.8	46	61	2.00	125	Center
7(2)	1/5	760	937	744	99	97.8	64	74	1.83	70	Center
8(3)	1/5	760	877	764	45	100	55	47	2.00	125	Center

(1) 20 cu ft of H_2O (gas) = 1 lb.(2) Concentration of the NaBH_4 increased by removing about 10 gallons of water.(3) Concentration of the NaBH_4 decreased by adding about 10 gallons of water.

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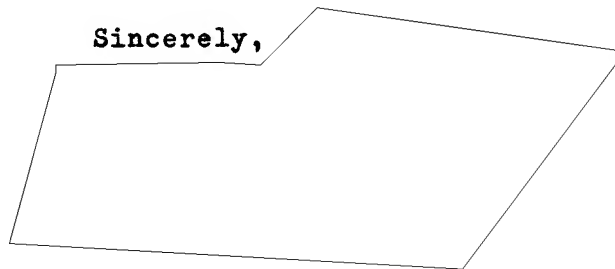
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Future tests in the small generator will be run using the procedure that is expected to be followed in the full-size generator, as related to the addition of the sodium borohydride and of the cobalt chloride, and to the tie off of the inlet tubes during the generation period.

The full-scale experimental unit has been ordered. Delivery is expected by about June 1, 1958.

The total appropriation on this Task Order was \$39,375. As of March 1, 1958, the unexpended balance was approximately \$8,350.

Sincerely,



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